

Curriculum Vitae

Dr. J. Marshall Shepherd
Department of Geography, Full Professor with Tenure
Director, UGA Atmospheric Sciences Program,

Other Affiliations/Titles: UGA Water Resources Faculty, College of the Environment, the joint UGA-U.S. Department of Agriculture (USDA) Southern High Resolution Modeling Center (SHRMC), and the UGA Initiative for Climate and Society

Tenure Status: Tenured (2009)
Graduate Faculty Status: Appointed to Full Graduate Faculty at University of Georgia, March 2006
Appointed to Graduate Faculty at Purdue University, July 2008
Highest Degree: Ph.D. Physical Meteorology, Florida State University, Tallahassee, Florida, 1999

Academic Positions

August 2011-Present Full Professor and Director, Atmospheric Sciences Program, University of Georgia
January 2006-2011 Associate Professor, University of Georgia

Other Professional Employment

1991-1992 Meteorological Technician, NOAA-NWS, Tallahassee, Florida.
1991-1993 Consulting Meteorologist, Metropolitan Weather Solvers, Tallahassee, Florida.
1991-1993 Research Assistant, Mesoscale Meteorology Group, Florida State University, Tallahassee, Florida.
1993-1993 Research Meteorologist, Science Systems and Applications, Inc., Lanham, Maryland.
1993-2005 Research Meteorologist, NASA Goddard Space Flight Center, Greenbelt Maryland.

RESIDENT INSTRUCTION AND CONTINUING EDUCATION

Courses taught in support of general physical geography curriculum with the Department of Geography and the Atmospheric Sciences Certificate program.

a. Description of Existing Courses Taught

ODY Inaugural Odyssey Seminar-A Freshman survey seminar starting in Fall 2011. 1 hour. We will explore concepts in Earth and climate observation from the vantagepoint of space.

GEOG 1112 (plus Honors Section (GEOG2120) occasionally). Introduction to Weather and Climate. 3 hours. Atmospheric composition and structure, clouds, precipitation, and atmospheric motion and winds. Organized weather systems, including air masses, fronts, and severe weather. Discussion of global climates includes circulation, wind systems, climate classification, and climate change. Typical enrollment: 88 to 300 students.

HON 1990H Honors College Seminar. 1 hour. Joint course with Warnell School of Forestry and Natural Resources. The course was a survey course on climate change and migratory birds and a pre-cursor to a course series funded by NASA (Shepherd as a co-Investigator).

GEOG 4140/6140. Satellite Meteorology/Climatology. 3 hours. Application of satellite remote sensing in meteorology and climatology. Applications include clouds, atmospheric water vapor and precipitation, the Earth's radiation budget, sea and land surface temperatures. Typical enrollment: 15 to 25 students.

GEOG 8120. Seminar in Climatology. 3 hours. Advanced topics in physical climatology such as climate change, microclimatology, urban climatology or synoptic climatology. Specific topics may vary. Topics that have covered include urban climate system, cooling trends in the southeastern United States, and climate policy. Typical enrollment: 7 to 15 students.

GEOG 8290. Directed Problems in Physical Geography. 1-3 hours. Repeatable for maximum 9 hours credit.

Advanced problems in physical geography. Topics vary.

GEOG 7000. Master's Research. 1-9 hours. Repeatable for maximum 45 hours credit. Research while enrolled for a master's degree under the direction of faculty members.

GEOG 7005. Graduate Student Seminar. 3 hours. Repeatable for maximum 45 hours credit. Advanced supervised experience in an applied setting.

GEOG 7300. Master's Thesis. 1-9 hours. Repeatable for maximum 45 hours credit. Thesis writing under the direction of the major professor. Non-traditional format: Independent research and thesis preparation.

GEOG 9005. Doctoral Graduate Student Seminar. 3 hours. Advanced supervised experience in an applied setting. This course may not be used to satisfy a student's approved program of study.

b. Description of New Courses Established by M. Shepherd

GEOG 4160/6160. Applied Climatology in the Urban Environment. 3 hours. (New Course Using Modification to existing Applied Climatology Course Name and Number). The interaction of the urban environment with the Earth's climate system including weather, climate, hydrology, carbon cycle, nitrogen cycle, and societal activities. The course also provides an opportunity for students to participate in an urban climate field experiment. Typical enrollment: 15 to 25 students.

Geog 4170/6170. Mesoscale/Radar Meteorology and Climatology. 2 hours + 2 hour lab. (New course, Spring 2010). Fundamental theory, analysis, and exercises on mesoscale weather phenomena and principles of radar meteorology. A major topical focus will be thunderstorms, mesoscale convective systems, and tornadic supercells. This course fills a gap in our Atmospheric Sciences Certificate curriculum. Our Atmospheric Sciences Certificate already meets major community benchmarks of the National Weather Service and AMS, but feedback from students and faculty establish the need for a course that addresses fundamentals of radar meteorology and mesoscale processes. Typical enrollment: 15 to 25 students.

Odyssey Seminar. Studying the Earth From the Perspective of Space. 1 hour. New freshman seminar examining all aspects of Earth system science from the perspective of space. The course will expose freshmen to current topics, methods, and discussion and integrate a significant writing component.

c. Other Instructional and Teaching Contributions

Climatology Laboratory: Key organizer and developer of new laboratory space acquired by the Department of Geography to support the growing climate group. The space includes 6-8 computer workstations, a projection and display system for weather discussions and lectures, a flat-screen monitor, and storage space for field equipment and demonstration kits. The lab has been an invaluable resource for instruction, graduate defenses, student community building, and research collaboration meetings.

Teaching Evaluations: The department uses a scoring system ranging from 1 to 5 points, with a score of 1 being the best score possible, 3 being an average score, and 5 being the worst score possible. This evaluation form changed in 2001 and now asks students to evaluate instructors in eight areas related to teaching effectiveness. The table summarizes overall teacher evaluation ratings from 2006 to 2009. The mean rating of 11 courses taught is 1.15.

Innovative strategies: Through funding from the Northeast Georgia Partnership for Reform in Science and Math (PRISM), I developed inquiry-based modules and lessons based on a realistic climate modeling system called EdGCM. These lessons are now an integral part of the instructional format of the Introduction to Weather and Climate laboratory (GEOG1112L). In developing these modules, we used the concept of today's students as "digital natives" and argued that learning tools must leverage their comfort level and exposure to new digital media.

Co-PI on a NASA-funded effort in the Warnell School of Forestry to create a three-course sequence on aspects of observing and modeling climate change-migratory bird relationships. My role is to provide lectures and resources on climate and guidance on integration of climate models like EdGCM. We developed a prototype Honors (HON

1990H) course that was team-taught for the first time in Spring 2010.

In 2006-2007, the AMS Online Weather Course, Module, and Tools were also introduced to the Geography Department's resources.

Instructional Resources: Through my funded research, Department of Geography instructional resources/capacity were augmented with the renewal of the Idrisi Taiga software system (4/09) and the acquisition of a Dustrak air quality monitor to support micrometeorological studies (2008).

SCHOLARLY ACTIVITIES

1. PUBLICATIONS

* Stringent Peer Review, **Invited and/or Carry Prestige and Recognition

Books Authored or Co-Authored

- 2013 **Shepherd, J.M.** Under contract with Wiley for a textbook entitled, The Urban Climate System.
- 2012 National Research Council Committee on Urban Meteorology, 2012: Urban Meteorology: Scoping the problem, Defining the Need (**included J.M. Shepherd**). The National Academies Press, Washington, D.C. (In review).
- 2011 National Research Council Committee on National Security Implications of Climate Change for U.S. Naval Forces (includes **J.M. Shepherd**), 2011: National Security Implications of Climate Change for U.S. Naval Forces, The National Academies Press, Washington, D.C., 226 pp.
http://www.nap.edu/catalog.php?record_id=12914
- 2000 Bortz, F. and **J.M. Shepherd**, 2000: Dr. Fred's Neighborhood Weather Watch. McGraw-Hill Publishers. 98 pp.

Books Edited or Co-Edited

Chapters in Books

- 2010 ****Shepherd, J.M.**, J.A. Stallins, M. Jin, and T.L. Mote, 2010: Urban effects on precipitation and associated convective process. Handbook of Human Ecology. Eds. Ian Douglas et al. Taylor and Francis Books (In Press).
- 2010 **Shepherd, J.M.**, 2010: Essay entitled "Urbanization and its effects on key atmospheric and surface water cycle." In Principles of Water Resources, 3rd Edition by T. Cech. John Wiley and Sons, Inc. 546 pp.
- 2010 ****Shepherd, J.M.**, W. Shem, M. Manyin, L. Hand, and D. Messen, 2010: Modeling Urban effects on the precipitation component of the water cycle. Invited chapter for the book: Geospatial Analysis and Modeling of Urban Environments. Eds. X. Yao and H. Jaing, Springer Book Series and GIScience, 445 pp.
- 2009 ****Didier, T, P. Artaxo, S. Yuter, and Y. Kaufman** with contributing authors **M. Shepherd, Z Levin, U. Baltensperger, G. Feingold**, 2009: Chapter 5: Observational studies of the effects of aerosols on clouds and precipitation, Assessment of the Effects of Pollution on Precipitation. Eds. Levin, Z., and W. Cotton. Commissioned by The World Meteorological Organization/IUGG. International Aerosol Precipitation Science Assessment Group (IAPSAG). Springer. 386 pp.
- 2008 ***Mitra C., Shepherd J.M., and Jordan T. R.**, 2008: Assessment and dynamics of the urban growth in the city of Kolkata, India. Eds. A.K. Dutt, V. Wadhwa, B. Thakur, and G.M. Pomeroy. Social Geography for the 21st Century. (Contract with) Concept Publishing Company. New Delhi (In Press).
- 2008 Reynolds, S., Burian, S., **Shepherd, J.M.**, and Manyin, M., 2008: Chapter 7: Urban induced rainfall modifications on urban hydrologic response. In: Reliable Modeling of Urban Water Systems. Edited by W. James et al. Computational Hydraulics International. Guelph, Ontario, CA. pp. 99-122.
- 2008 ****Hou, A.Y., G.S. Jackson, C. Kummerow, and M. Shepherd**, 2008: The Global Precipitation Measurement Mission. Precipitation: Advances in measurement, estimation, and prediction. Edited by Silas Michaelides. Springer. 540 pp.
- 2007 *** and **Lead Authors:** Trenberth, K.E., P.D. Jones, P. Ambenje, R. Bojariu, D. Easterling, A. Klein Tank, D. Parker, F. Rahimzadeh, J.A. Renwick, M. Rusticucci, B. Soden and P. Zhai Contributing Authors: R. Adler (USA), L. Alexander (UK, Australia, Ireland), H. Alexandersson (Sweden), R. Allan

- (UK), M.P. Baldwin (USA), M. Beniston (Switzerland), D. Bromwich (USA), I. Camilloni (Argentina), C. Cassou (France), D.R. Cayan (USA), E.K.M. Chang (USA), J. Christy (USA), A. Dai (USA), C. Deser (USA), N. Dotzek (Germany), J. Fasullo (USA), R. Fogt (USA), C. Folland (UK), P. Forster (UK), M. Free (USA), C. Frei (Switzerland), B. Gleason (USA), J. Grieser (Germany), P. Groisman (USA, Russian Federation), S. Gulev (Russian Federation), J. Hurrell (USA), M. Ishii (Japan), S. Josey (UK), P. Kållberg (ECMWF), J. Kennedy (UK), G. Kiladis (USA), R. Kripalani (India), K. Kunkel (USA), C.-Y. Lam (China), J. Lanzante (USA), J. Lawrimore (USA), D. Levinson (USA), B. Liepert (USA), G. Marshall (UK), C. Mears (USA), P. Mote (USA), H. Nakamura (Japan), N. Nicholls (Australia), J. Norris (USA), T. Oki (Japan), F.R. Robertson (USA), K. Rosenlof (USA), F.H. Semazzi (USA), D. Shea (USA), **J.M. Shepherd** (USA), T.G. Shepherd (Canada), S. Sherwood (USA), P. Siegmund (Netherlands), I. Simmonds (Australia), A. Simmons (ECMWF, UK), C. Thorncroft (USA, UK), P. Thorne (UK), S. Uppala (ECMWF), R. Vose (USA), B. Wang (USA), S. Warren (USA), R. Washington (UK, South Africa), M. Wheeler (Australia), B. Wielicki (USA), T. Wong (USA), D. Wueertz (USA), 2007: Observations: Surface and Atmospheric Climate Change. In: Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC). Eds. Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K.B. Averyt, M. Tignor and H.L. Miller. Cambridge University Press, Cambridge. United Kingdom and New York, NY, USA, 235-336. **Note: The Intergovernmental Panel on Climate Change shared in the Nobel Prize (2007).**
- 2007 ****Imhoff, M., L. Bounani, and J.M. Shepherd, 2007: The gray wave. Our Changing Planet: A View from Space. Eds. Robin G. Williams, Kim Partington, Claire Parkinson, and Michael D. King. Cambridge University Press. 500 pp.**
- 2007 ****Smith, A., G. Asrar, Y. Furuhashi, A. Ginati, C. Kummerow, V. Levizzani, A. Mugnai, K. Nakamura, R. Adler, V. Casse, M. Cleave, M. Debois, J. Durning, J. Entin, P. Houser, T. Iguchi, R. Kakar, J. Kaye, M. Kojima, D. Lettenmaier, M. Luther, A. Mehta, P. Morel, T. Nakazawa, S. Neeck, K. Okamoto, R. Oki, G. Raju, **J.M. Shepherd**, E. Stocker, J. Testud, and E. Wood, 2007: International Global Precipitation Measurement (GPM) program and mission: An overview. Measuring Precipitation from Space - EURAINSAT and the future. Eds. V. Levizzani, P. Bauer, and F. J. Turk. Springer, 611-653.**
- 2004 Burian, S.J., **J.M. Shepherd**, and P. Hooshalsadat, 2004: "Urbanization impacts on Houston rainstorms." Innovative Modeling of Urban Water Systems. Monograph 12. Edited by W. James. pp. 1-22.

Monographs

- 2010 ****Shepherd, J.M., J.A. Stallins, M. Jin, and T.L. Mote, 2010: Urbanization: Impacts on clouds, precipitation, and lightning. Monograph on Urban Ecological Ecosystems. Eds. Jacqueline Peterson and Astrid Volder. American Society of Agronomy-Crop Science Society of America- Soil Science Society of America, 354 pp.**
- 2003 Tao, W.-K., R. Adler, D. Baker, S. Braun, M.-D. Chou, M. Jasinski, Y. Jia, R. Kakar, S. Lamg, W. K.-M. Lau, B. Lynn, M. Karyampudi, Z.-X. Pu, **M. Shepherd**, J. Simpson, D. Starr, Y. Wang, W. Weinman and P. Wetzel, 2003: Regional scale modeling at NASA Goddard Space Flight Center. Recent Research Developments in Atmospheric Science. *Research Signpost*. Volume 2, 52 pp.

Journal Articles (Peer-Reviewed)

- 2011 Mitra, C., **M. Shepherd** and T. Jordan, 2011: On the relationship between the pre-monsoonal rainfall climatology and urban land cover dynamics in Kolkata city, India. *International Journal of Climatology*, DOI: 10.1002/joc.2366
- 2011 **Shepherd, J.M.**, 2011: Carbon, Climate Change, and Controversy. *Animal Frontiers*, Vol. 1, <http://www.animalfrontiers.org/2011/Vol1/003.pdf>
- 2011 **Shepherd, J.M.**, and T.L. Mote, 2011: Can Cities Create Their Own Snowfall?: What observations are required to find out? Earthzine, Special Urban Monitoring Theme Issue. <http://www.earthzine.org/2011/09/06/can-cities-create-their-own-snowfall-what-observations-are-required-to-find-out/>
- 2011 **Shepherd, J.M.**, T.L. Mote, S. Nelson, S. McCutcheon, P. Knox, M. Roden, and J. Dowd, 2011: An overview of synoptic and mesoscale factors contributing to the disastrous Atlanta flood of 2009, *Bull. of the Am. Meteor. Soc.* 92, 861-870. doi: 10.1175/2010BAMS3003.1. **Note: UGA issued a press release on this paper.**
- 2011 Zhao, F., and **M. Shepherd**, 2011: Precipitation Changes near Three Gorges Dam, China-Part I: A Spatio-Temporal Validation Analysis. *J. of Hydrometeor.* doi: 10.1175/JHM-D-11-061.1

- 2011 Niyogi, P. Pyle, M. Lei, S.Arya, C. Kishtawal, **M. Shepherd**, F. Chen, and B. Wolfe, 2011: Urban modification of thunderstorms: Urban Modification of Thunderstorms - An Observational Storm Climatology and Model Case Study for the Indianapolis Urban Region.. *J. of Appl. Meteor. and Clim.*, **50**, 1129-1144
- 2011 Carter, W.M., **J.M. Shepherd**, S. Burian, and I. Jeyachandran, 2011: Integration of lidar data into a coupled mesoscale-land surface model: A theoretical assessment of sensitivity of urban-coastal mesoscale circulations to urban canopy. *Journal of Atmospheric and Oceanic Technology*. doi: <http://dx.doi.org/10.1175/2011JTECHA1524.1>
- 2011 Hossain*, F. A. M. Degu*, D. Niyogi, S. Burian, **J.M. Shepherd**, R. Pielke Sr.(2011). Climate Feedback-based Considerations to Dam Design, Operations and Water Management in the 21st Century, ASCE J. Hydrologic Engineering, (doi:10.1061/(ASCE)HE.1943-5584.0000541)
- 2011 Andersen, T., and **J.M. Shepherd**, 2011: Seasonal predictability of tornadic activity using antecedent soil moisture conditions. *Earthzine*, <http://www.earthzine.org/2011/06/10/seasonal-predictability-of-tornadic-activity-using-antecedent-soil-moisture-conditions/>
- 2011 Mitra, C., T. Jordan, and **M. Shepherd**, 2011: Growth of Kolkata, India-Past, present, and future: a synergistic analysis using cartographic, GIS, remote sensing, and cellular automata modeling. *Professional Geographer (Conditionally Accepted)*.
- 2011 Degu, A.M., F. Hossain, D. Niyogi, R. Pielke, **J.M. Shepherd**, N. Voisin, and T. Chronis, 2011: The influence of large dams on surrounding climate and precipitation patterns. *Geophysical Research Letters*, Vol. 38, doi: 10.1029/2010GL046482
- 2010 **Shepherd, J.M.**, W.M. Carter, M. Manyin, D. Messen, and S. Burian, 2010: The impact of urbanization on current and future coastal convection: A case study for Houston. *Environment And Planning* , **37**, 284-304.
- 2010 Jin, M., **J.M. Shepherd**, and W. Zheng, 2011: Urban Surface Temperature Reduction via the Urban Aerosol Direct Effect: A Remote Sensing and WRF Model Sensitivity Study. *Advances in Meteorology*, vol. **2010**, Article ID 681587, 14 po. 2010. doi:10.1155/2010/681587.
- 2010 Mahmood, R., R. Pielke Sr., K. Hubbard, D. Niyogi, G. Bonan, P. Lawrence, B. Baker, R. McNider, C. McAlpine, A. Etter, S. Gameda, B. Qian, A. Carleton, A.B.-Przekurat, T. Chase, A. Quintanar, J. Adegoke, S. Vezhapparambu, G. Conner, S. Asefi, E. Sertel, D. Legates, Y. Wu, R. Hale, O. Frauenfeld, A. Watts, **M. Shepherd**, C. Mitra, V. Anantharajan, S. Fall, R. Lund, A. Nordfelt, P. Blanken, J. Du, H. Chang, R. Leeper, U. Nair, S. Dobler, R. Deo, and J. Syjtus, 2010: Impacts of land use land cover change on climate and future research priorities. *Bulletin of the American Meteorological Society*, **91**, 37-46.
- 2010 Han, W.S., Burian, S.J., and **Shepherd, J.M.** 2010: Assessment of satellite-based rainfall estimates in urban areas in different geographic and climatic regions. *Natural Hazards* (published online, DOI 10.1007/s11069-010-9585-7).
- 2010 Stafford, S. G., D.M. Bartels, S. Begay-Campbell, J.L. Bubier, J. C. Crittenden, S.L. Cutter, J.L.Delaney, T.E. Jordan, A. C. Kay, G.D.Libecap, J.C. Moore, N.N. Rababais, D. Rejeski, O.E. Sala, **J.M. Shepherd**, and J.Travis. 2010: Now Is the Time for Action: Transitions and Tipping Points in Complex Environmental Systems. *Environment: Science and Policy for Sustainable Development*, 52: 1, 38-45 Doi: 10.1080/00139150903481882.
- 2010 Jordan, T. E., O. E. Sala, S. G. Stafford, D. M. Bartels, S. Begay-Campbell, J. L. Bubier, J. C. Crittenden, S. L. Cutter, J. R. Delaney, A. C. Kay, G. D. Libecap, J. C. Moore, N. N. Rabalais, D. Rejeski, **J. M. Shepherd**, A. Tessier, and J. Travis. Tipping our Science: New NSF Report Recommends Interdisciplinary Approach to Study Natural and Social Systems. *EOS*, 91, 143.
- 2009 Kishtawal, C., D. Niyogi, M. Tewari, R. Pielke Sr., and M. Shepherd, 2009: Urbanization signature in the observed heavy rainfall climatology over India. *International Journal of Climatology*. DOI: 10.1002/joc.2044.
- 2009 ****Shepherd, J.M.**, D. Niyogi, and T.L. Mote, 2009: A seasonal-scale climatological analysis correlating spring tornadic activity with antecedent fall-winter drought in the Southeastern United States. *Environmental Research Letters*. **4**, 7 pp. doi: 10.1088/1748-9326/4/2/024012. **Note: UGA issued a press release on this paper.**
- 2009 Seto, K., and **J.M. Shepherd**, 2009: Global urban land-use trends and climate impacts. *Current Opinion in Environmental Sustainability*, doi:10.1016/j.cosust.2009.07.012.
- 2009 Hand, L., and **J.M. Shepherd**, 2009: An investigation of warm season spatial rainfall variability in Oklahoma City: Possible linkages to urbanization and prevailing wind. *J. Appl. Meteor. Climatol.* **48**, 251–269.

- 2009 Zhou, Y., and **J.M. Shepherd**, 2009: Atlanta's urban heat island under extreme heat conditions. *Natural Hazards*. 10.1007/s11069-009-9406-z, 30 pp.
- 2009 Lacke, M., T.L. Mote, and **J.M. Shepherd**, 2009: Aerosols and Associated Precipitation Patterns in Atlanta, *Atmospheric Environment*. doi:10.1016/j.atmosenv.2009.04.022.
- 2009 Durkee, J. D., T. L. Mote, and **J. M. Shepherd**, 2009: The contribution of mesoscale convective complexes to rainfall across subtropical South America. *Journal of Climate*. **22**, 4590-4605.
- 2009 Chang, H. D. Niyogi, A. Kumar, C. Kishtawal, J. Dudhia, F. Chen, U.C. Mohanty, and **M. Shepherd**, 2009: Possible relation between land surface feedback and the post-landfall structure of monsoon depression. *Geophysical Research Letters* (Accepted).
- 2008 **Shepherd, J.M.**, and T. Knutson, 2008: Teaching and learning guide for: The current debate on the linkage between global warming and hurricanes. *Geography Compass*. **Vol. 2**. DOI: 10.1111/j.1749-8198.2008.00120.x.
- 2008 Shem, W., and **J.M. Shepherd**, 2008: On the impact of urbanization on summertime thunderstorms in Atlanta: Two numerical model case studies. *Atmospheric Research*. **92**, 172-189.
- 2008 Jin, M., and **J.M. Shepherd**, 2008: Aerosol relationships to warm season clouds and rainfall at monthly scales over east China: Urban land versus ocean. *J. Geophys. Res.* **113**, D24S90, doi:10.1029/2008JD010276.
- 2008 Grundstein, A., S.E. Sarnat, M. Klein, **J.M. Shepherd**, L. Naeher, T. Mote, and P. Tolbert, 2008: Thunderstorm-associated asthma in Atlanta, Georgia. *Thorax*. doi:10.1136/thx.2007.092882 63;659-660.
- 2007 **Shepherd, J.M.**, and T. Knutson, 2007: The current debate on the linkage between global warming and hurricanes. *Geography Compass*. **1** (1). 1–24. doi:10.1111/j.1749-8198.2006.00002.x. **Note: This paper has consistently been in the top 10 viewed papers online for this journal according to publisher.**
- 2007 **Shepherd, J. M.**, A. Grundstein, and T. L. Mote, 2007: Quantifying the contribution of tropical cyclones to extreme rainfall along the coastal southeastern United States. *Geophys. Res. Lett.* **34**, L23810, doi:10.1029/2007GL031694. **Note: Funding sponsor, NASA, issued a press release on this paper.**
- 2007 Jin, M., **M. Shepherd**, and C. Peters-Lidard, 2007: Development of a parameterization for simulating the urban temperature hazard using satellite observations in a climate model. *Nat. Hazards*. doi 10.1007/s11069-007-9117-2.
- 2007 Mote, T.L., M.C. Lacke, and **J.M. Shepherd**, 2007: Radar signatures of the urban effect on precipitation distribution: A case study for Atlanta, Georgia. *Geophysical Research Letters*. **34**. L20710, doi:10.1029/2007GL031903.
- 2006 ****Shepherd, J.M.**, 2006: Evidence of urban-induced precipitation variability in arid climate regimes. *Journal of Arid Environments*. 10.1016/j.jaridenv.2006.03.022. **Note: UGA and NASA issued a press release on this paper.**
- 2006 Elaine M. Prins, Christopher S. Velden, Jeffrey D. Hawkins, F. Joseph Turk, Jaime M. Daniels, Gerald J. Dittberner, Kenneth Holmlund, Robbie E. Hood, Arlene G. Laing, Shaima L. Nasiri, Jeffery J. Puschell, **M. Shepherd**, and John V. Zapotocny, 2006: 13th AMS Conference on Satellite Meteorology and Oceanography. *Bull. Amer. Meteor. Soc.* **87**, 633–637.
- 2005 **Shepherd, J.M.**, 2005: A review of current investigations of urban-induced rainfall and recommendations for the future. *Earth Interactions*. **Vol. 9**. No. 12, 1–27.
- 2005 Burian, S.J. and **J. M. Shepherd**, 2005: Effects of urbanization on the diurnal rainfall pattern in Houston. *Hydrological Processes: Special Issue on Rainfall and Hydrological Processes*. **19**, 1089-1103.
- 2005 Jin, M., **M. Shepherd**, and M. D. King, 2005: Urban aerosols and their variations with clouds and rainfall: A case study for New York and Houston. *J. Geophys. Res.* **110**, D10S20, doi:10.1029/2004JD005081.
- 2005 Jin, M., and **M. Shepherd**, 2005: Inclusion of urban landscape in a climate model: How Can Satellite Data Help? *Bulletin of the American Meteorological Society*. **Vol. 86**. No. 5, 681–689.
- 2004 **Shepherd, J.M.**, and M. Jin, 2004: Linkages between the urban environment and Earth's climate system. *EOS*. **85**, 227-228.
- 2004 **Shepherd, J.M.**, L. Taylor, and C. Garza, 2004: A dynamic multi-criteria technique for siting NASA-Clark Atlanta rain gauge network. *J. of Atm. and Oceanic Technology*. **21**, 1346-1363.
- 2004 **Shepherd, J.M.**, 2004: "A reply to Diem et al.'s commentary on A recent literature contribution focused on urban-induced rainfall in Atlanta." *J. of Appl. Meteor.* **Vol. 43**. 951-957.
- 2003 ****Shepherd, J.M.**, and S.J. Burian, 2003: Detection of urban-induced rainfall anomalies in a major coastal city. *Earth Interactions*. **7**, 1-14. **Note: Paper was featured in August 2003 edition of Time magazine.**

- 2002 ****Shepherd, J.M.**, Harold Pierce, and A. J. Negri, 2002: On rainfall modification by major urban areas: Observations from space-borne radar on TRMM. *Journal of Applied Meteorology*. **41**, 689-701.
- 2001 **Shepherd, J.M.**, Brad S. Ferrier, and Peter S. Ray, 2001: Rainfall morphology in Florida convergence zones: A numerical study. *Monthly Weather Review*. **129**, 177-197.
- 2001 Michaels, M. **J.M. Shepherd**, S. Aberson, K. Murphy, and H. Friedman, 2001: Survey results of society membership: The face of our profession at the threshold of the new millennium. Bulletin of the American Meteorological Society. *Bull. of Amer. Meteo. Soc.* **82**, 1331-1352.
- 1996 G.M. Heymsfield, I.J. Caylor, J.M. Shepherd, and W.B. Olson, 1996: Structure of Florida Thunderstorms Using High-Altitude Aircraft Radiometer and Radar Observations. *Journal of Applied Meteorology*. **35**, 1736-1762.

Bulletins or Reports

- 2011 Committee on National Security Implications of Climate Change for U.S. Naval Forces (including **M. Shepherd**), 2011: National security implications of climate change for U.S. Naval Forces, Naval Studies Board, National Research Council, The National Academies Press, Washington, DC.
- 2008 Mitra, C., **M. Shepherd**, and T. Jordan, 2008: The dynamics of urban growth in Kolkata, India and Potential impacts on pre-monsoon precipitation. Urban Climate News: Quarterly Newsletter of IAUC (International Association of Urban Climate). (Issue 28, Page 11). Available at <http://www.urban-climate.org/>.
- 2002 **Shepherd, J.M.**, and E.A. Smith, 2002: Bridging from TRMM to GPM to 3-Hourly Precipitation Estimates. NASA Technical Memorandum-2002-211602-GPM Report 7. Available at NASA/GSFC, 1-7.
- 2002 **Shepherd, J.M.** and AV. Mehta, 2002: Summary of First GPM Partners Planning Workshop. NASA Conference Publication-2002-210012-GPM Report 1, Available at NASA/GSFC. 1-37.
- 1993 Paxton, C. and **J.M. Shepherd**, 1993: NOAA Technical Memorandum NWS SR-149 Radar diagnostic parameters as indicators of severe weather in Central Florida. Scientific Services Division-Southern Region, June. 11 pp.

Abstracts/Peer-Reviewed Conference Proceedings

- 2009 **Shepherd, J.M.**, and T.L. Mote, 2009: Urban effects on rainfall variability: Potential implications for Georgia's water supply. *Proceedings of the 2009 Georgia Water Resources Conference*. 6 pp.
- 2004 Burian, S.J., P. Hooshalsadat, S. Reynolds, and **J.M. Shepherd**, 2004: "Effect of cities on rainfall and the implications for drainage design." Critical Transitions in Water and Environmental Resources Management. *Proceedings of the World Water and Environmental Resources Congress*. Edited by G. Sehlke, D.F. Hayes, D.K. Stevens. ASCE. New York, NY.

Book Reviews

- 2011 Review of Climate Change Book by David Kitchen
- 2010 Review of Understanding Weather and Climate, 5th Edition. Aguado and Burt (June 2010).

Submitted But Not Yet Accepted

- 2011 Hossain, F., A. Degu, A. Woldemicahele, W. Yigzaw, C. Mitra, **M. Shepherd**, and A. Sakbor, 2011: Analysis of rainfall patterns in the context of rapid urbanization and water resources vulnerability of an Asian megacity. Submitted to Water Resources Research.
- 2011 Gensini, V. A., M. Petro, G. Maier, and **J. M. Shepherd**, 2011: Characteristics of Atlantic Basin recurring hurricanes. Submitted to International Journal of Climatology, [in review].
- 2011 Han, W., Burian, S.J., and **Shepherd, J.M.** (2011b). "Investigation of factors influencing rainfall-runoff process in global runoff models." *Journal of Hydrology* (under review).
- 2011 Han, W., Burian, S.J., and **Shepherd, J.M.** (2011c). "Introducing a land surface slope correction factor into a global runoff model." *Journal of Hydrology* (under review).
- 2010 Shem, W., T.L. Mote, and **J.M. Shepherd**, 2010: Validation of Narccap climate products for forest resource applications in the southeast United States. *Atmospheric Environment*.

Other Publications

- 2010 Advisory Committee for Environmental Research and Education. 2010. Transitions and Tipping Points in

- Complex Environmental Systems. A Report by the NSF Advisory Committee for Environmental Research and Education. 56 pp.
- 2009 **Shepherd, J.M.**, 2009: Urbanization. *Encyclopedia of Climate and Weather*, 2nd Edition. Ed. Stephen Schneider, Oxford University Press (Accepted).
- 2009 **Shepherd, J.M.**, 2009: Atmospheric Remote Sensing. *Encyclopedia of Geography*. Ed. Barney Warf, Sage Reference (Accepted).
- 2008 **Shepherd, J.M.** with contributions from T.L. Mote, September 2008: Op-Ed on Hurricane Season: Warming Revs Into Action. *Atlanta Journal-Constitution*.
- 2007 **Shepherd, J.M.**, 2007: Contributor to article on Hole Punch Clouds. *National Geographic* (West Edition), September Issue.
- 2006 **Shepherd, J.M.**, June 11th, 2006: Op-Ed on Hurricanes and Global Warming, *Atlanta Journal-Constitution*.
- 2005 **Shepherd, M.**, 2005: "Can Cities Make Rain?" *Weatherwise* magazine. Volume **58**. No. 5 (September/October Issue).
- 2003 **Shepherd, J.M.**, D. Herring, J. Halverson, R. Gutro, and G. Huffman, 2003: "The Big Picture." *Weatherwise*, Vol. **56**, No. 1 (Jan./Feb Issue).
- 2003 Birk, R., D. Steitz, **and J. M. Shepherd**: 2003: Earth Observation Summit. *Earth Observation Magazine*. Vol. **12**.
- 1999 **Shepherd, J.M.**, 1999: Rainfall morphology in semi-tropical convergence zones. Submitted in partial fulfillment (May 1999) of a Doctor of Philosophy in Meteorology at Florida State University, Tallahassee, Florida 32306. 130 pp.
- 1992 **Shepherd, J.M.**, 1992: A radar reflectivity-based algorithm for tropical cyclone location. Submitted and accepted on Nov. 24th, 1992 in partial fulfillment of a Master's Degree in Meteorology at Florida State University, Tallahassee, Fl. 32306.

2. CONTRIBUTIONS OTHER THAN FORMAL PUBLICATIONS

Sessions Convened

- 2011 Co-Organizer, 2012 AMS Session on Hydroclimate Applications of GPM, New Orleans, LA.
- 2008 Co-Convener of Fall 2008 AGU Union Session on Urbanization and Climate Change.
- 2006 Co-convener (along with Dr. Tom Bell of NASA) of Spring American Geophysical Union session, "Aerosols, Pollution, and Urbanization Effects on Precipitation." Baltimore, MD.
- 2004 Co-Organizer of AMS Short Course on Satellite Data Assimilation at Annual AMS meeting.
- 2003 Co-Convener of Fall 2003 AGU Union Session on Urbanization and Climate Change.

Invited Talks, Special Presentations, Affiliations and Activities (Present to 1999):

- 2011 Invited Speaker at USFS National Climate Assessment Stakeholders meeting, Atlanta, GA (July)
- 2011 Invited Speaker, Peach State LSAMP Summer Student Orientation, Athens, GA (July)
- 2011 Invited Assembly Speaker UGA Upward Bound (June). Topic: Climate and Careers
- 2011 Invited Keynote Luncheon Speaker. "Urban effects on precipitation, storms, and flooding." Georgia Water Resources Conference, Athens, GA (April).
- 2011 Invited lecture "Urban effects on precipitation, storms, and flooding." West Central Florida Chapter of the American Meteorological Society and the University of South Florida's Department of Geography, Environment and Planning (April).
- 2011 Invited talk "Extreme urban flooding in the United States: An urban hydrometeorological perspective. AMS Annual Meeting, Conference on Planned and Inadvertent Weather Modification, Seattle, WA. (January).
- 2010 Invited climate lecture to UGA Peach State Louis Stokes Alliance for Minority Participation Freshman Seminar (July).
- 2010 Invited climate lecture to Fernbank Science Center Teacher Workshop in Dekalb County, GA (July).
- 2010 Invited lecture on urban precipitation at Coweeta Summer Symposium, Oslo, NC (June).
- 2010 Invited Panelist on Urban Climate at 2010 AAG Annual Meeting (April).
- 2010 Invited keynote speaker on Climate Change, Council of Science Editors Conference, Atlanta, GA. (May).
- 2009 Invited lecture on Climate Change to Athens Kiwanis Club.
- 2009 Invited panel lecturer at public program at the National Academy of Science in Washington, DC.
- 2008 Invited lecture on Georgia's Climate Change at Fernbank Museum of Nat. History, Atlanta, GA.
- 2008 Invited lecture on Climate Change at Emmanuel College, Franklin Springs, GA.

- 2008 Invited colloquium speaker, Florida State University, Department of Geography. Tallahassee, FL.
- 2008 Invited Black History Month Speaker, U.S. Forest Service, Athens, GA.
- 2007 Invited by Former GEOG1112 Student to deliver a Motivational Talk at Classic City High School, Athens, GA.
- 2007 Invited lecture on Human Impacts on the Water Cycle at Duke University (Focus Program), Durham, NC.
- 2007 Invited lecture at the Symposium on Evolution of Climate Modeling the Prediction of Climate Change and Science Policy in Boulder, CO.
- 2007 Invited talk for Ohio State University Department of Geography Seminar Series. "How Cities Affect the Water Cycle." Columbus, OH.
- 2007 Invited plenary speaker for the BHSI Spring Symposium: Climate, Ecology, and Infectious Disease. Athens, GA.
- 2007 Invited speaker to Athens-Clarke County Republican Party Monthly Meeting. Topic of discussion: Climate Change.
- 2006 Invited Speaker at NASA Goddard Space Center Engineering Seminar Series. Greenbelt, MD.
- 2006 Panel Discussant 4621 Geographic Dimensions of Hurricane Katrina Plenary Session 2006 AAG meeting. Chicago IL.
- 2005 Guest lecturer at Smithsonian-GSFC Lecture Series —"What is going on with the 2004 and 2005 Hurricane Season?" Washington, DC.
- 2005 Invited lecturer at the Philosophical Society of Washington's fall lecture series on Friday evening. Title- "How Cities Affect Weather and Climate". Washington, DC.
- 2005 Invited talk on "Precipitation Measurement from Space" at the Goddard Memorial Symposium. Greenbelt, MD.
- 2004 Invited presentation at East Carolina University Geography Department. Invited talk on "How Cities Create Their Own Rainfall and Storms," was part of Geography Awareness Week at East Carolina University in Greenville, NC.
- 2004 Presented Lecture entitled "Are Cities Creating Their Own Rainfall" for the University of Maryland Baltimore County Center for Urban Environmental Research and Education and Department of Civil and Environmental Engineering Fall 2004 Seminar Series. Baltimore, MD.
- 2004 Invited keynote speaker on the Evening of April 29th, 2004 at Riverside Elementary School's annual Math/Science Night.
- 2004 Invited presentation on ongoing NASA research into Urbanization and Precipitation Variability at the University of Alabama-Huntsville.
- 2003 Invited keynote Speaker at Cornell University for NASA Awareness Days. Ithaca, NY.
- 2003 Invited speaker at NASA Days at Centennial of Flight Activities in Dayton, OH.
- 2002 Invited speaker at the 2002 EOS IWG in Hunt Valley, MD on Nov 20th . "The impact of urbanization on the precipitation component of the water cycle: A new perspective."
- 2002 Invited Seminar on Rainfall Anomalies in Houston and GPM Mission at the University of Virginia Department of Environmental Sciences. Charlottesville, VA.
- 2002 Invited Seminars at Pennsylvania State University Meteorology Department: (1) An Investigation of the Influence of Urban Areas on Rainfall Using the TRMM Satellite and a Cloud-Mesoscale Model and (2) Towards A Global Precipitation Mission. State College, PA.
- 2001 Invited Lecturer at Washington College in Chestertown, Maryland. The lecture was entitled "The Use of NASA's Earth Science Enterprise Satellites to Monitor Environmental Change.

Other Speaking and Media Engagements (Present to 1999)

- 2011 Interviewed by WCIU (Channel 26) in Chicago concerning 2011 Blizzard (February)
- 2010 Interviewed by Weather Channel for April 2010 Episode of Storm Stories about 2008 Atlanta tornado.
- 2009 Interviewed by WXIA-TV (Atlanta) about historic Atlanta flooding in September 2009 (September).
- 2009 Interviewed by WFLA-TV (Tampa) about Hurricanes and Drought.
- 2009 Featured on CNN International for Urban Climate Research.
- 2008 Interviewed by Ivanhoe Media Services on Thunderstorm Asthma.
- 2008 Expert lecturer on climate for NSF traveling PolarPalooza events (during the International Polar Year) in Atlanta, Georgia, Baton Rouge, Louisiana , and Raleigh, North Carolina
- 2007 Appeared on CBS Evening News discussing urban-induced rainfall.
- 2007 Featured profile in Franklin Chronicle magazine.

2007 Appeared on PBS' Georgia Weekly discussing 2007 hurricane season and climate change.

2007 Featured profile in OVPR's Research Magazine Q&A segment.

2007 Featured profile at Minority Environmental Leadership Development Institute's website: http://www.umich.edu/~meldi/4_profiles_minprof.html.

2006 Presentation to Atlanta AMS Chapter on the UGA Atmospheric Sciences Program.

2006 Interviewed by PBS Georgia Weekly on the 2006 Hurricane Season.

2006 Interviewed by CBS 46 on August 10th, 2006 about research on urban-induced precipitation.

2005 Numerous Presentations at NASA Goddard Space Flight Center to NASA Administrator, NOAA Administrator, National Weather Service Director International Delegations, Congressional Members, Staffers, and Agency Visitors.

2005 Seminar on Earth's Changing Climate System to the University of Maryland-Baltimore County Physics-Earth Science Class of Amita Mehta. Baltimore, MD.

2005 Seminar to the Sailing Group "Women Aboard" in Annapolis, MD.

2005 Member of a NASA Delegation that Attended a Joint Meeting between the Laboratory for Atmospheres and Caribbean Climate Studies A NASA EPSCoR Project at the University of Puerto Rico, Mayaguez.

2005 Panelist and Speaker at John F. Kennedy High School called "African-Americans in Science" Program.

2004 Presentation to New York City Astronomy Students visiting NASA.

2004 Interviewed by a PBS crew for a NOVA Program on the 2004 Atlantic Hurricane Season. The program aired on January 25th, 2005.

2004 Interviewed by Maryland Public Television for a Special on Hurricane Isabel's Impacts on Maryland.

2004 Two Presentations on NASA Precipitation Missions and Urban-Induced Weather for the Earth Explorers Institute Symposium which was held Monday-Thursday at NASA-GSFC and the Maryland Science Center.

2004 Presentation/Moderator to NOAA-Department of Homeland Security Urban Meteorology Symposium (Sept. 22nd 2004, Rockville MD).

2004 Conducted Interviews with Major Media Organizations (Larry King Live, Today Show, NBC Nightly News, Fox News, CNN Lou Dobbs, BET Nightly News, and Numerous Local News Affiliates) to discuss how NASA is studying hurricanes during the 2004 Hurricane season.

2004 Presentation to NASA Goddard Executive Council and Earth Science Directorate Management on Recent Satellite-Modeling study of Urban-induced Convection.

2004 Presented a seminar entitled "NASA Efforts to Understand How Cities May Create Their Own Weather" at Bowie State University for the Department of Computer Science Seminar Series.

2004 Presented a seminar "Improving Weather Predictions: NASA's perspective and Implications for Energy Management" at George Washington University. Washington, DC.

2004 Presentation on Houston Rainfall Anomalies at 1st HEAT planning meeting in Boulder, CO.

2003 Guest on National Public Radio with Kojo Nmandi. (September 2003).

2003 Presentation to Jason Rothenberg (White House Office of Management/Budget) on the benefits of NASA satellite data and models to improved weather forecasts.

2003 Appearance in a NASA recruitment DVD entitled "As Only NASA Can".

2003 Presentation of NASA ESE Science Accomplishments at the Goddard Memorial Symposium at the Greenbelt Marriott.

2003 Presentation Satellite Data in Weather-Climate Prediction to Dr. Margaret Leinen, NSF.

2002 Presentation "A downscaling analysis of the urban influence of rainfall" at the 2002 NASA Land Use Land Cover Change Science Team Meeting at the University of MD Conference Center.

2002 Presentation to White House Science Advisor John Marburger on NASA Precipitation Program.

2002 Appeared on Public Interest with Kojo Nandhi (NPR) to discuss technology and weather.

2002 Attended 2nd GPM Partnership Workshop in Tokyo, Japan (May 2002).

2002 Presentation at George Washington University Space Policy Institute Symposium "Economic Value of Improved Weather and Climate Information" (March 2002). Washington, DC.

2002 Overview of NASA Earth Science Activities: Atmospheric Science Component for a training session for National Park Service park rangers in Washington, DC.

2002 Organized and hosted the 1st GPM Applications Workshop (February 2002). Beltsville, MD.

2002 Presentation entitled "Large Forecast Centers Using TRMM Real-Time Data" at the Annual Meeting of the American Association for the Advancement of Science. Washington, DC.

- 2001 Served on Congressional Black Caucus Science Braintrust Panel (September 2001).
- 2001 NASA CAMEX-4 Press Briefing at Jacksonville, FL NAS to Discuss Role of TRMM in the Field Campaign.
- 2001 Overview Earth Sciences presentation to Department of Defense Air Force Fellows and Office of Management and Budget. Greenbelt, MD.
- 2001 Presenter and Panelist at the City of New York's Graduate Center Symposium on Science and Mathematics. New York, NY.
- 2001 Presentation of NASA Earth Science Results to Delegation from Bahrain. Greenbelt, MD.
- 2000 Presentation to Congressmen, NASA Administrator, and general public on remote sensing of weather and climate events at the Langley IMAX theatre of the National Air and Space Museum.
- 2000 Presentation to Dr. Neal Lane, President Clinton's Science Advisor, and high-ranking NASA and Japanese officials highlighting the accomplishments of the Earth System Enterprise's TRMM and TERRA Spacecraft missions.
- 1999 Presentation to White House Office of Science and Technology Policy and Office of Management and Budget officials on the capabilities in remote sensing for environmental monitoring.
- 1999 Member of expert panel at the NASA's 5th Model Institutes of Excellence Symposium. A lecture entitled "On the role of climate and weather processes within the Earth System: Perspectives from Remote Sensing and Implications for the Next Generation of Earth Scientists.

3. GRANTS RECEIVED

Current Grants

09/01/2011-08/31/2012 (0 month)

NASA, The Brown Ocean Concept: A spatio-temporal and theoretical analysis of re-intensifying tropical cyclones over land. PI with graduate student Theresa Andersen (UGA Budget, \$28,400).

04/01/2010-03/31/2013 (1 month)

NASA, Influence of Humans on Precipitation Variability, Climate, and the Water Cycle: Preparing for the GPM era. PI with co-PIs S. Burian and Menglin Jin (UGA Budget, \$406,343).

08/10/10-07/31/13 (0.5 month)

NASA, Using geospatial data and field investigations to monitor effects of climate change on birds along elevational and latitudinal gradients Co-Investigator with J. Hepinstall, M. Conroy, R. Cooper (UFA Budget, \$449,765).

10/01/08-10/01/11(1 month)

Department of Energy/SRNL, FY 2009-FY2012, Project Title: Integrated Hydrologic/Hydrodynamic Modeling System for Collection of Pollutant Signatures. Co-Investigator with A. Grundstein (PI), J. Bollinger, T. Mote, T. Rasmussen, and others (UGA Budget, \$750,000).

08/01/10-07/31/12 (0.0 month)

U.S. Forest Service, Climate Change and Social Vulnerability in the Southeast U.S and Africa. Principal Investigator (UGA Budget, \$15000).

10/01/09-07/31/12 (0.5 month)

U.S. Forest Service, Climate Change and Social Vulnerability in the Southeast U.S. Co-Investigator (UGA Budget, \$22000).

03/01/07-03/01/11 (1 month)

NASA Headquarters, FY 2006-2009, Impact of Humans on Precipitation Variability. Principal Investigator with co-investigators S. Burian (University of Utah) and M. Jin (University of Maryland) (UGA Budget, \$390,000).

06/01/09-05/31/11 (no salary)

U.S. Forest Service, Regional Climate Simulations of Southern Forests. Co-Investigator with T. Mote (UGA Budget, 130K).

04/01/09-08/31/11 (no salary)

U.S. Forest Service, Evaluation of WRF Model for SHRMC Activities. Co-Investigator with T. Mote (UGA Budget, 30K).

07/01/09-06/30/12 (no salary)

National Science Foundation, Creating a Diversity Climate Network (D-ClimNet) to enhance the climate sciences pipeline of minority students from high school to graduate levels. Co-PI with L. Giroux and M. Raphael (UGA Budget, \$58,418).

Pending Grants

- 08/01/2012-07/31/15 (1.0 month)
NASA, Urban-Snowfall Relationships. PI with Co-I Mote, M. Jin, and D. Robinson. (UGA Budget, \$892,805)
- 08/01/2012-07/31/15 (1.0 month)
NASA, Combining satellite data and models to assess the impacts of urbanization on the continental United States surface climate. Co-I with L. Bounana, M. Imhoff, D. Quattrochi, et al. (UGA Budget, \$170,687).
- 08/01/2012-07/31/15 (0.5 month)
NASA, Multisensor/multiscale diagnosis of the urbanization impact on the Indian monsoon rainfall
Co-I with D. Niyogi et al. (UGA Budget, \$134,602).
- 08/01/2012-07/31/15 (1.0month)
NASA, Urbanization and its impact on water resources vulnerability in the East Gangetic Plains of South Asia
Co-I with C. Mitra, F. Hossain, M. Jin, and D. Niyogi et al. (UGA Budget, \$175,459).
- 09/01/2012-08/31/2017 (1.0 month)
HHS, Southeast Center for Climate, Oceans, and Human Health. Co-I with several investigators (PI: E. Lipp).
(UGA Budget, \$6,493,497)
- 04/01/12-03/31/13 (0.5 month)
NASA, Multi-Scale Drought Impacts on Southern Appalachian Headwaters: Accounting for the combined effects of drought and exotic pest defoliation in support of resource management. Co-I with Marguerite Madden, Tommy Jordan, Sergio Bernades, and Tom Mote (UGA Budget, \$155,139)
- 01/01/11-12/31/14 (1.0 month)
NSF, Urban Landscape-Snowfall Relationships. PI Shepherd, with Co-I Thomas L. Mote, Marguerite Madden (UGA Budget, \$259,243)
- 08/01/11-07/31/14 (0.75 month)
NASA, Expanding the Diversity Climate Network (D-ClimNet) to support NASA's STEM mission to entrain minority students and teachers in the climate sciences. UGA PI with Co-I Thomas L Mote, PI D. Padgett (TSU), L.A. Dupigny-Giroux (Vermont), and M. Raphael (UCLA). (UGA Budget, \$241, 853).

Past Funded Grants

- 2006-2009-NASA, FY 2006-2009, Impact of Humans on Precipitation Variability. Principal Investigator with co-investigators S. Burian (University of Utah) and M. Jin (University of Maryland) (UGA Budget, \$390,000).
- 2010-Franklin College, Franklin Visiting Scholars Program. Travel grant for Dr. Dupigny-Giroux (Vermont) to visit UGA. (\$1000).
- 2008-2010-NASA, Water and Energy Cycle, An observational and modeling study of a rare tornadic storm in a major central business district: Possible linkages to drought and urban land cover. Principal Investigator with co-Investigator D. Niyogi (Purdue) (UGA Budget, \$45,632).
- 2007-2009-Defense Threat Reduction Agency, FY 2006-2008, Urban Enhancements to Meteorological Modeling and Observations. Co-Investigator with S. Burian (University of Utah) and M. Jin (University of Maryland) (UGA Budget, \$85790).
- 2008-2009-US Forest Service, Assessing air quality and perceptions of environmental hazards in the Newtown Community: A prototype UGA-U.S. Forest Service Initiative on environmental justice and green space engagement. Principal Investigator with co-Investigators T. Mote, N. Heynen, and C. Johnson (UGA Budget, \$7895).
- 2006-2007-Northeast Georgia Partnership for Reform in Science and Mathematics (PRISM) 2006-07
Improving Teaching and Learning of Science and Mathematics at the Undergraduate Level, 2006-2007,
Enhancing Climate Change Science Education Through Inquiry-Based Concepts and Real-World Simulations
Co-Investigator, Robert Hill (UGA COE) (\$7790).
- 2006-2008-NASA Goddard Space Flight Center. Science Support for the Development of The NASA
Global Precipitation Measurement Mission's Science Implementation Plan and Continuing Precipitation
Science Team Activities (\$55,000).
- 2006-2007-NASA Goddard Space Flight Center. Developing a Framework for Understanding the
Titanian Methane Cycle using Remote Sensing Techniques Developed for Studying Earth's Water Cycle. PI:
Dr. Marshall Shepherd (UGA), Co-I: Terence Doiron/GSFC/555, Co-I: Chris Ruf/University of Michigan
(\$75,000 in FY06 with possible FY07 extension, UGA Budget \$5120).
- 2006-2007-NASA Headquarters. Extension of PECASE funding. The Impact of Urbanization on Climate:

Integrated Modeling to Couple urban growth, land use change and weather-climate (\$106,974).
 2003-2006-NASA Headquarters. Research Opportunities for Precipitation Measurement Missions: Understanding the Impact of Urbanization on Short and Long Term Precipitation Variability and Land Surface Hydrologic Processes (\$275,000).
 2003-2006-NASA NRA-02-OES-05 Research Opportunities for Precipitation Measurement Missions. The Impact of Precipitation Measurement Missions on Hydrologic and Water Resource Predictions. Co-I with PI C.P. Lidard (GSFC) and CO-I A. P. Georgakakos (Ga. Tech) (Unfunded co-PI).
 2003-2005-NASA Headquarters. Impacts of Urban Surfaces on Rainfall Modification using Space-Based Rainfall Measurement, Numerical Models Simulations, and High-Density Gauge Validation: Science Impact, Applications, and Policy Implications. NASA New Investigator Program (300K/3 Years).
 1999-2000-NASA GSFC. "Informal Science Education Supporting Weather Broadcasters On-Air with TRMM "Mini-Education Supplements" awarded by GSFC Director's Discretionary Fund (25K per year).
 1994-1995- NASA Headquarters. Co-Investigator on proposal with Dr. Gerald Heymsfield and Dr. Brad Ferrier on research related to remote sensing of tropical mesoscale convective systems.

4. RECOGNITION AND OUTSTANDING ACHIEVEMENTS

2011 Franklin College of Arts and Sciences Excellence in Diversity Leadership Award
 2011 Promoted to Full Professor at the University of Georgia
 2011 Received the AMS Charles Anderson Award
 2011 Outstanding Alumni Award, FSU Black Alumni Association
 2010 Awarded tenure at the University of Georgia
 2010 Nominated to attend 2010 UGA Teaching Academy Faculty Symposium
 2009 Inducted as a Fellow of the American Meteorological Society**
 2007 Contributing Author to Nobel Prize Winning IPCC AR4**
 2005 Black Enterprise Magazine "Hot List"
 2005 Network Journal Magazine "Forty under 40" recipient
 2004 Recipient of Presidential Early Career Award for Scientists and Engineers (PECASE)**
 2004 NASA/GSFC Group Award for Contributions to the JASON Project
 2004 Special Act Award (NASA OES)
 2003 Peer Award for Scientific Research
 2002 Recipient of NASA New Investigator Program Award
 2001 Laboratory for Atmospheres Outreach Award
 2001 NASA/GSFC Group Achievement Award
 2001 Special Act Award for superior performance of a special act (Horizon team)
 2001 Special Act Award for superior performance of a special act (Outreach Initiatives)
 NASA Performance. (FY03,FY00,FY98,FY97,FY96,FY95,FY94)
 1999 1st African American to receive PhD in Meteorology from Florida State University**
 1999 NASA/GSFC Special Act Award for superior performance
 1999 NASA/GSFC Group Achievement Award-AGS Imager Team
 1987-1993 American Meteorological Society (AMS)/TRW Industry Fellow
 National Science Foundation (NSF) Fellow Competition (Honorable Mention)
 Dolores Auzene Fellow (FSU).
 Leslie N. Wilson Assistantship Recipient (FSU)
 National Achievement Scholar
 American Geological Institute Scholar
 Chi Epsilon Pi Meteorology Honorary
 Omicron Delta Kappa National Honorary
 Who's Who Among College Students
 Outstanding College Student of America
 1990 National Collegiate Forecast Winner (Burlington, VT period).
 1987 High School Valedictorian, Cherokee High School

5. AREAS IN WHICH RESEARCH IS DONE

My research seeks to understand aspects of Earth's hydrometeorological and hydroclimate system (i.e. cloud systems, thunderstorms, hurricanes, precipitation) using advanced satellites, experimental aircraft, radars, and

sophisticated computer models. and relate them to weather and climate change. I am also interested in innovative strategies to infuse research data into applications, outreach, and instructional communities.

Research on Urbanization and the Weather-Hydroclimate System: The overarching goal is to characterize possible urban-related (land cover, anthropogenic heating, and pollution) influences on spatio-temporal variability in the hydroclimate and to pose sound physical explanations for such interactions using in-situ and remote sensing data and numerical models.

Research on Tropical Precipitating Systems: The overarching research goal is to characterize and quantify precipitation within tropical precipitating systems. An extension of this research examines whether the contribution of tropical cyclones is changing in response to natural or anthropogenic climate change.

Research on Extreme Weather and Climate Events: The goal of this research is to examine the relationship between extreme climate events and extreme manifestations of weather. This is a fertile area of research as the Inter-governmental Panel on Climate Change continues to project increased frequency and/or intensity of extreme water cycle events.

Research on Innovative Applications of Physical Geographic and Climate Data: This track encompasses a wide variety of research interests related to integrating weather and climate data/analysis into decision support systems and societal applications. Examples of this work include funding by the U.S. Forest Service (USFS) to explore the socio-political, weather, air quality, and health implications swirling around the long-running conflict between residents of the Newton community in Gainesville, Georgia and industrial pollutant sources. Other projects investigate the complex coupled human-natural system in urban environments and implications for public health.

6. SUPERVISION OF STUDENT RESEARCH

Doctoral Advisor to Ms. Theresa Andersen, University of Georgia

Doctoral Advisor to Ms. Amanda Schroeder, University of Georgia

Doctoral Advisor to Ms. Binita KC, University of Georgia

Doctoral Advisor to Mr. Marcus Williams, University of Georgia

Doctoral Advisor to Ms. Chandana Mitra, University of Georgia (Graduating December 2010)

Dissertation: The Dynamics of Urban Land Cover Growth in Kolkata, India and Potential Impacts on Pre-Monsoonal Precipitation: Project Impact or Natural Variation?

Master's Advisor to Mr. Fang Zhao (Graduated in May 2011, U of MD doctoral program.)

Thesis: Precipitation Changes Near Three Gorges Dam

Master's Advisor to Ms. Lauren Hand (Graduated in May 2008, employed by Dewberry, Inc.)

Thesis: An Investigation of Warm Season Rainfall Variability in Oklahoma City: Possible Linkages to Urbanization and Prevailing Wind

Master's Advisor to Ms. Yan Zhou (Graduated in Summer 2008, U of MD doctoral program)

Thesis: Atlanta's Urban Heat Island under Extreme Heat Conditions and Potential Mitigation Strategies

Master's Advisor to Mr. Michael Carter (Graduated in Spring 2009, Miss. State Univ. doctoral program)

Thesis: Mesoscale Circulations in the Urban-Coastal Environment: A Modeling Analysis and Assessment of Sensitivity to High Fidelity Representation of the Urban Canopy

Master's Advisor to Ms. Theresa Anderson (Graduated in Summer 2010, UGA doctoral program)

Thesis: A Climatological Analysis of Drought and Tornado Activity in the Southeastern U.S.

Co-Master's Advisor to Ms. Tonya Hart (Current)

Thesis: Georgia's Land Cover and its Influence on Surface Temperatures

Post-Doctoral Research Collaborations with Dr. Willis Shem (Currently at UGA Post-Doc on joint

UGA/USFS project, co-PIs Marshall Shepherd and Thomas Mote)

Served as a member of the following student committees:

Fang Zhao, Master's Committee (Graduated), Ms. Jordan Pesses, Master's Committee (Graduated), Mr. Craig Ramseyer, Master's Committee (Graduated), Mr. Pete Campana, Master's Committee (Graduated), Ms. Laura Becker (Graduated), Mr. Matthew Lacke, Master's Committee (Graduated), Ms. Elizabeth Smith, Master's Committee, Montana State University (Graduated), Ms. Jennifer Pahl, Doctoral Committee (UGA Ecology, pending), Mr. Lei Ming, Doctoral Committee, Purdue University (Current), Mr. ByungYun Yang, Doctoral Committee (Current), Mr. Sergio Bernardes, Doctoral Committee (Current), Mr. Chris Furnhan, Doctoral

Committee, University of North Carolina (Current), Dr. John Frye, Doctoral Committee, University of Georgia (Graduated), Dr. Joshua Durkee, Doctoral Committee, University of Georgia (Graduated), Dr. Sharon Ashley Doctoral Committee University of Georgia (Graduated), Dr. Sara Vieira Doctoral Committee at Georgia Tech (Graduated)

7. EDITORSHIPS AND EDITORIAL BOARDS

Current Editor, *Journal of Applied Meteorology and Climatology*. A leading journal in the field of meteorology and climatology and published by the American Meteorological Society.
Current Weather Editor, *Earthzine Magazine*.
2011 Guest Editor, *Earthzine Magazine* Spring Special Issue on Extreme Weather
2007-2001 Editor for *Geography Compass*.
2006-2007 Past member of the Editorial Board for *Geography Compass*.

8. CONVENTION/CONFERENCE PAPERS

Key Acronyms: Association of American Geographers (AAG), American Meteorological Society (AMS), American Geophysical Union (AGU), European Geophysical Union (EGU)

*Refereed paper associated with conference paper

- 2011 Chang, I., M. Bentley, and **J.M. Shepherd**, 2011: Spatial distributions of rainfall intensity maxima in intense tropical cyclones from the TRMM Multi-satellite precipitation analysis dataset. AGU Annual Meeting, San Francisco, Ca.
- 2011 Jin, M., R. Dickinson, and **J.M. Shepherd**, 2011: Using MODIS skin temperature to assess urban heat island and biosphere-land interactions, AGU Annual Meeting, San Francisco, CA.
- 2011 **Shepherd, J.M.**, 2011: Current and emerging perspectives on urban hydroclimate interactions. NASA PMM Science Team meeting, Denver, CO (invited).
- 2011 Ignatius, A., A. Grundstein, T. Rasmussen, B. Avant, **J.M. Shepherd**, and T. Mote, 2011: A methodology for hydrological modeling in data poor regions using satellite-based and reanalysis meteorological data, AAG Annual Meeting, Seattle, WA.
- 2011 Zhao, F., and **J.M. Shepherd**, 2011: Precipitation changes near Three Gorges Dam. AAG Annual Meeting, Seattle, WA.
- 2011 Jin, M., **J.M. Shepherd**, and W. Zheng, 2011: Urban aerosol direct effect on surface temperature. AMS Annual Meeting, Seattle, WA.
- 2011 Andersen, T., and **J.M. Shepherd**, 2011: A climatological analysis of drought and tornadic activity in the southeastern United States, AMS Annual Meeting, Seattle, WA.
- 2010 ***Shepherd, J.M.**, T.L. Mote, S. Nelson, S. McCutcheon, P. Knox, M. Roden, and J. Dowd, 2010: An overview of synoptic, mesoscale and urban factors contributing to the disastrous Atlanta flood of 2009, 9th Conference on the Urban Environment, Keystone, CO.
- 2010 ***Shepherd, J.M.**, T.L. Mote, S. Nelson, S. McCutcheon, P. Knox, M. Roden, and J. Dowd, 2010: An overview of synoptic and mesoscale factors contributing to the disastrous Atlanta flood of 2009, AAG Annual Meeting, Washington, DC.
- 2010 Ignatius, Amber, A. Grundstein, T. Rasmussen, T. Mote, **M. Shepherd**, J. Knox, J. Bollinger, A. Garrett, and D. Hayes, 2010: The use of MERRA reanalysis data in hydrologic modeling, AAG Annual Meeting, Washington, DC.
- 2010 Ignatius, Amber, A. Grundstein, T. Rasmussen, T. Mote, **M. Shepherd**, 2010: Utilizing Satellite-based and Reanalysis Precipitation Data in Hydrological Modeling, AGU Annual Meeting, San Francisco, CA.
- 2010 Avant, B., Ignatius, Amber, T. Rasmussen, A. Grundstein, T. Mote, **M. Shepherd**, 2010: Coupling Tritium Release Data with Remotely Sensed Precipitation Data to Assess Model Uncertainties, AGU Annual Meeting, San Francisco, CA.
- 2010 Giroux L., M. Raphael, **M. Shepherd**, and T. Mote, 2010: Attracting and retaining minority students in the climate sciences - the Diversity Climate Network (D-ClimNet), AAG Annual Meeting, Washington, DC.
- 2010 **Shepherd, J.M.**, 2010: Global evidence of hydroclimate changes due to urbanization, AMS Annual Meeting, Atlanta, GA.

- 2010 Sarnat, S., A. Grundstein, M. Klein, **J. M. Shepherd**, L. Naeher, T. L. Mote, and P. E. Tolbert, 2010: Examining vulnerabilities to thunderstorm-associated asthma in Atlanta, Georgia, AMS Annual Meeting, Atlanta, GA.
- 2010 Anderson, T., and **J.M. Shepherd**, 2010: A climatological analysis of antecedent drought and spring tornadic activity, AMS Annual Meeting, Atlanta, GA.
- 2010 Mitra, C., and **J.M. Shepherd**, 2010: Influence of urban land cover dynamics on pre-monsoonal precipitation in Kolkata, India, AMS Annual Meeting, Atlanta, GA.
- 2010 Shem, W., T.L. Mote, and **J.M. Shepherd**, 2010: Validation of Narccap climate products for forest resource applications in the southeast United States, AMS Annual Meeting, Atlanta, GA.
- 2010 *Carter, M., **J. M. Shepherd**, S. Burian, and I. Jeyachandran, 2010: Mesoscale circulations in the urban-coastal environment: a modeling analysis and assessment of sensitivity to high-fidelity representation of the urban canopy, AMS Annual Meeting, Atlanta, GA.
- 2010 Zhao, F. and **Shepherd, J.M.** Three Gorges dam management: in the face of altered Precipitation. Poster presented at the 2010 Lower Apalachicola-Chattahoochee-Flint (ACF) Water Conference and Summit: Managing reservoirs from a human and Ecological perspective, Bainbridge, Georgia.
- 2009 ***Shepherd, J. M.**, A. Grundstein, and T. L. Mote, 2009: Quantifying the contribution of tropical cyclones to extreme rainfall along the coastal southeastern United States. Inland Impacts of Tropical Cyclones Conference. Atlanta, Georgia.
- 2009 **Shepherd, M.**, S. Burian, and M. Jin, 2009: Can satellite-derived rainfall really detect urban rainfall anomalies? 89th Annual Meeting. Phoenix, AZ.
- 2009 ***Shepherd, M.**, D. Niyogi, T.L. Mote, and J. Entin, 2009: A climatological analysis associating spring tornadic activity with antecedent precipitation and drought in the Southeastern United States. 89th Annual Meeting. Phoenix, AZ.
- 2009 Burian, S., I. Jeyachandran, **M. Shepherd**, M. Carter, and M. Jin, 2009: Satellite-based approaches to determine urban characteristics: implications for NUDAPT and modeling. 89th Annual AMS Meeting. Phoenix, AZ.
- 2009 *Niyogi, D., **M. Shepherd**, M. Lei, W. Shem, and J. Entin, 2009: An observational and modeling study of a rare tornadic storm in a major central business district: Possible linkages to drought and urban land cover. 89th Annual Meeting. Phoenix, AZ.
- 2009 *Hand, L., and **J.M. Shepherd**, 2009: An investigation of warm season spatial rainfall variability in Oklahoma City: Possible linkages to urbanization and prevailing wind. 89th Annual Meeting. Phoenix, AZ.
- 2009 Mitra C, **J.M. Shepherd**, and T.R. Jordan, 2009: Assessment and dynamics of the urban growth in the city of Kolkata, India. 89th Annual Meeting. Phoenix, AZ.
- 2009 *Zhou, Y., and **J.M. Shepherd**, 2009: Atlanta's urban heat island under extreme heat conditions. 89th Annual AMS Meeting. Phoenix, Arizona.
- 2009 Carter, W.M., **J.M. Shepherd**, S. Burian, I. Jeyachandran, and M. Jin, 2009: Mesoscale circulations in the urban environment. 89th Annual AMS meeting. Phoenix, AZ.
- 2008 ***Shepherd, J.M.**, A. Grundstein, and T. L. Mote, 2008: Quantifying the contribution of tropical cyclones to extreme rainfall along the coastal southeastern United States. 2008 AAG Annual Meeting. Boston, MA.
- 2008 **Shepherd, J.M.**, 2008: Urban effects on Precipitation: Revisiting the 5-cities Study. 3rd TRMM International Science Conference. Las Vegas, Nevada.
- 2008 ***Shepherd, J.M.**, A. Grundstein, and T. L. Mote, 2008: Quantifying the contribution of tropical cyclones to extreme rainfall along the coastal southeastern United States. 88th Annual AMS Meeting. New Orleans, LA.
- 2008 Han, W., S. Burian, and **J.M. Shepherd**, 2008: Use of TRMM precipitation data to investigate urbanization effects on the water cycle. 3rd TRMM International Science Conference. Las Vegas, Nevada.
- 2008 Jin, M., **J.M. Shepherd**, and S. Burian, 2008: Urban aerosol effects and their direct effects on surface temperature. AGU Fall Meeting. San Francisco, CA, USA.
- 2008 Burian, S., **J.M. Shepherd**, M. Jin, and colleagues, 2008: Urban land surface characterization and aerosol adjustment enhancements to meteorological modeling. 12th Annual GMU Conference on Transport and Dispersion Modeling. Fairfax, VA.
- 2008 *Shem, W., and **J.M. Shepherd**, 2008: On the impact of urbanization on summertime thunderstorms in Atlanta: Two numerical model case studies. 2008 AAG Annual Meeting, Boston, MA.

- 2007 ***Shepherd, J.M.**, A. Grundstein, and T.L. Mote, 2007: Quantifying the contribution of tropical cyclones to extreme rainfall along the coastal southeastern United States. SEDAAG, Charleston, South Carolina.
- 2007 ***Shepherd, J.M.**, M. Manyin, and D. Messen, 2007: Projected regional climate changes in 2025 Houston due to urban growth. 2nd ICA Workshop on Geospatial Analysis and Modeling. Athens, GA. (Session Chair: Urban Modeling).
- 2007 ***Shepherd, J.M.**, M. Manyin, and D. Messen, 2007: The impact of current and future urbanization on coastal convective precipitation. AMS Forum: Climate Change Manifested by Changes in Weather. 87th AMS Annual Meeting. San Antonio, TX.
- 2007 **Shepherd, J.M.**, and T. Mote, 2007: Trends towards wetter hurricane basins. AMS Forum: Climate Change Manifested by Changes in Weather. 87th AMS Ann. Meeting. San Antonio, TX.
- 2007 Jin, M., **J.M. Shepherd**, L. Remer, et al., 2007: Urban aerosol effects on rainfall and clouds in USA and China. The Fourth International Ocean-Atmosphere Conference (COAA2007). Qingdao, China.
- 2007 *Shem, W., and **J.M. Shepherd**, 2007: Investigating the relationship between urban land use and precipitating convective systems over the Atlanta region. AMS 7th conference on urban environment. San Diego, California.
- 2007 Mitra, Chandana, and **J.M. Shepherd**, 2007: Assessment and modeling of urban sprawl in Kolkata. Annual AAG Meeting. San Francisco, California.
- 2007 Jin, M., and **J.M. Shepherd**, 2007: Urban aerosol impact on surface energy and hydrological cycles. . AMS Forum: Climate Change Manifested by Changes in Weather. 87th AMS Annual Meeting. San Antonio, TX.
- 2007 Jin, M. S J Burian, LA Remer, **J.M. Shepherd**, 2007 Urban aerosol effects on surface insolation and surface temperature. AGU Fall Meeting. San Francisco, CA.
- 2007 Jin, M. L. Remer, **J.M. Shepherd**, and S. Burian, 2007: Urban aerosol direct effect on surface skin temperature. A-Train-2007 Symposium. 22-25 October 2007. Lille Grand Palace, France.
- 2006 ***Shepherd, J.M.**, M. Manyin, and D. Messen, 2006: Projected regional climate changes in 2025 Houston due to urban growth. Special session called "Impact of Aerosols and Urbanization on Precipitation." Spring AGU Meeting. Baltimore, MD.
- 2006 ***Shepherd, J.M.**, M. Manyin, and D. Messen, 2006: Projected regional climate changes in 2025 Houston due to urban growth. AAG Annual Meeting. Chicago, IL.
- 2006 ***Shepherd, J.M.**, M. Manyin, and D. Messen, 2006: Projected regional climate changes in 2025 Houston due to urban growth. 6th Symposium on the Urban Environment at the 2006 Annual AMS meeting, Special session called "cities as agents of global change." Atlanta, Georgia.
- 2006 Niyogi, D., R.A. Pielke, Sr., J. Adegoke, H.I. Chang, T.Chase, E. Douglas, M. Gupte, C. Marshall, T. Matsui, P.C. Pyle, and **M. Shepherd**, 2006: Considering the role of aerosols and land-atmosphere interactions related to agriculture and urbanization in climate studies. AAG Annual Meeting. Land Cover/Land Use Session. Chicago, IL.
- 2005 **Shepherd, J.M.**, Burian, S, and S. Reynolds, 2005: Urban-induced precipitation and flooding. GPM International Partners Meeting. Tokyo, Japan.
- 2005 *Shannon Reynolds, Steven Burian, **J. Marshall Shepherd**, and Michael Manyin, 2005: The effect of urbanization-induced rainfall variability on hydrologic response: Linking mesoscale meteorological model output to an urban watershed model. Impacts of Global Climate Change World Water and Environmental Resources Congress. 2005 Raymond Walton - Editor, May 15–19, 2005, Anchorage, Alaska, USA.
- 2005 Pyle, P., D. Nigoyi, S. P. Arya, B. Wolfe, and **M. Shepherd**, 2005: The effects of urban land-surface processes on thunderstorm characteristics in the Indianapolis urban region. Fall AGU Session on Land Use/Land Cover Change, San Francisco, California.
- 2004 ***Shepherd, J.M.**, M. Manyin, S. Burian, and C. Garza, 2004: Status of NASA satellite, field observations, and numerical modeling addressing the impact of urbanization on short and long term precipitation variability. AMS Annual Meeting, Symposium on Planning, Nowcasting, and Forecasting in the Urban Zone. Seattle, WA.
- 2004 *Jin, M, **J. M. Shepherd**, and M.D. King, 2004: Urban aerosols and their interactions with clouds and rainfall: A case study for New York and Houston. Poster at AERONET workshop at Spain May 10-14.
- 2004 *Jin, M., **J.M. Shepherd**, and M.D. King, 2004: Urban modeling and urban aerosol-clouds-rainfall interactions. Invited seminar at NCEP OGP. April 20th. Camp Springs, MD.

- 2004 *Jin, M., **J.M. Shepherd**, and M.D. King, 2004: Urban land-atmosphere interactions using EOS, TRMM and NCAR modeling. Invited seminar at Beijing urban research center. June 22, 2004. Beijing, China.
- 2004 *Jin, M., **J.M. Shepherd**, and M.D. King, 2004: Urban aerosols and their interactions with clouds and rainfall: A case study for New York and Houston. Poster at MODIS workshop at Greenbelt, MD. July 13-15.
- 2003 **Shepherd, J.M.**, and S. Burian, 2003: A downscaling analysis of the urban influence of rainfall: TRMM satellite component. 12th Conference on Satellite Meteorology and Oceanography. Long Beach, CA.
- 2003 ***Shepherd, J.M.**, 2003: The impact of urbanization on the precipitation component of the water cycle: A new perspective. Observing and Understanding the Variability of Water in Weather and Climate. Long Beach, CA.
- 2003 *Burian, S., and **M. Shepherd**, 2003: "Influence of urban areas on diurnal rainfall patterns. Geological Society of America Abstracts with Programs. Vol. 35. Seattle, WA.
- 2002 **Shepherd, J.M.**, 2002: An investigation of the influence of urban areas on rainfall using a cloud-mesoscale model and TRMM Satellite. AMS 4th Conference on the Urban Environment. Norfolk, Va., May 17-20.
- 2002 **Shepherd, J.M.**, 2002: An investigation of the influence of urban areas on rainfall using a cloud-mesoscale model and TRMM satellite. GAPP/AMS Mississippi River Climate and Hydrology Conference. New Orleans, La., May 13-17.
- 2002 **Shepherd, J.M.**, 2002: An investigation of the influence of urban areas on rainfall using a cloud-mesoscale model and TRMM satellite. Spring AGU Meeting. Washington, D.C.
- 2002 **Shepherd, J.M.**, E.A. Smith, and A.V. Mehta, 2002: Towards the Global Precipitation Measurement (GPM) Mission: An International Partnership and Precipitation Satellite Constellation for Scientific Research and Applications on the Global Water/Energy Cycle. GAPP/AMS Miss. River Climate and Hydrology Conference. New Orleans, La., May 13-17.
- 2002 Smith, E., A. Mehta, and **M. Shepherd**, 2002: Science formulation of Global Precipitation Measurement (GPM). EGS XXVII General Assembly. Nice, France. April 21-26, 2002.
- 2001 **Shepherd, J.M.**, 2001: TRMM: Status of precipitation estimates and science highlights. 7th Int'l Conf. On Precipitation. Rockport Maine. June 30-July 2, 2001.
- 2001 **Shepherd, J.M.**, 2001: Rainfall modification by urban areas: Part I: Observations from space-borne rain radar aboard TRMM. 7th International Conference on Precipitation. Rockport Maine and 11th Conference on Satellite Meteorology. Madison, WI.
- 2000 **Shepherd, J.M.**, 2000: Sensitivity of diabatic heating profiles to environmental conditions under weak large-scale forcing. National Technical Association Annual Meeting. Hampton, VA.
- 2000 ***Shepherd, J.M.**, 2000: Rainfall morphology in semi-tropical convergence zones. Preprints of the 15th Conference on Hydrology. Long Beach, CA.
- 2000 **Shepherd, J.M.**, 2000: Addressing issues that society members face in their place of employment. Preprints of the 9th Conference on Education. Long Beach, CA.
- 2000 **Shepherd J.M.**, et al., 2000: Informal science education supporting weather broadcasters on-air with TRMM mini-education supplements. Preprints of the 9th Conference on Education. Long Beach, CA.
- 1999 ***Shepherd, J.M.**, 1999: Effects of moisture convergence characteristics on rainfall development in semi-tropical convergence zones. Preprints of the 23rd Conf. on Hurr. and Tropical Meteorology. Dallas, TX. 622-625.
- 1998 **Shepherd, J.M.**, 1998. On the improvement of model simulations using three-dimensional, heterogeneous water vapor fields in the initialization process. Preprints of the 10th Symposium on Meteorological Observations and Instrumentation and Observations. Phoenix, AZ.
- 1997 **Shepherd, J.M.**, 1997. Low-level moisture: Is it a convective control? Preprints of the 22nd Conference on Hurricanes and Tropical Meteorology. Ft. Collins, CO.
- 1995 *Heymsfield, G., **J.M. Shepherd**, and J. Spinhrne, 1995. Vertical precipitation structure obtained from ER-2 remote sensing observations for the COARE 22 February 1993 case. Preprints of the 21st Conference on Hurricanes and Tropical Meteorology. Miami, FL.

PUBLIC SERVICE

- Current NOAA Science Advisory Board.
- Current National Academy of Science Committee on Urban Meteorology.

Current CENTRA War Game Scenarios on Climate and Security.
 Current U.S. Department of Energy Cool Roofs Initiative Review Panel (nominated and selected).
 Current University Space Research Assoc. Earth System Science Advisory Board.
 Current External Review Panel for NOAA Climate Prediction Center/Hydrometeorological Prediction Center.
 Current Advisory Committees for Howard University NOAA Center for Atmospheric Sciences and NASA University Research Center.
 Current Member of International Writing Team for the American Meteorological Society Policy Statement on Inadvertent Weather Modification.
 Current Project Associate for Urbanization and Global Environmental Change (UGEC) - an IHDP Core Project.
 Current NASA Precipitation Measurement Missions Science Team.
 Current AMS Membership Committee.
 Current Candidate for President-Elect, American Meteorological Society (AMS)
 2008-2011 NOAA Climate Working Group (Key external advisory body to NOAA on climate science).
 2009-2010 National Academy of Science Panel on Climate Change Effects on U.S. Naval Operations and National Security
 2009-2010 NASA Goddard Earth Science Director Search Committee.
 2009-2010 2010 Co-Program Chair, American Meteorological Society Annual Meeting, Atlanta, GA.
 2006-2009 Member of the American Meteorological Society Executive Council.
 2006-2008 Member of the American Meteorological Society Executive Committee.
 2005-2008 Team member on World Meteorological Organization (WMO) Panel to assess the effects of natural and anthropogenic particles on precipitation.
 2008-2009 Planning Committee for NASA Symposium on Earth System Science at 20 Years.
 2008-2009 External Review Panel for NOAA ISET Program at North Carolina A&T University.
 2008 Served on NASA Hurricane Science Program Review Panel.
 2007 Member of Atmospheric Science and Climate Literacy (ASCL) Workshop Organizing Committee.
 2006 Invited Panelist to testify before the National Academies of Science Review Panel for the NASA Applied Sciences Committee.
 1999-2009 Reviewer of Manuscripts for AMS Journal of Applied Meteorology and Climatology, AMS Journal of Hydrometeorology, Professional Geographer, Southeastern Geographer, Atmospheric Environment, Atmospheric Research, JGR-Atmospheres, Earth Interactions, Int. Journal of Climatology, Theoretical and Applied Climatology, Journal of Climate, The Professional Geographer, Geography Compass, Journal of Climate and Geophysical Research Letters, The Open Atmosphere Science Journal, International Journal of Applied Geospatial Research.
 1999-2009 Reviewer of Proposals for Israel Science Foundation, Hong Kong Research Council, NASA, National Science Foundation (Physical Meteorology, Regional Geography, Geosciences Education), Department of Energy, National Oceanic and Atmospheric Administration.
 2007-2009 Promotion Reviews for Dr. Menglin Jin (U of MD), Dr. Jeffrey Halverson (UMBC), Xiping Zeng (UMBC), David Sailor (Portland State).
 2004 Chairman of NASA Laboratory for Atmospheres Peer Award Committee.
 2003-2006 NASA Precipitation Science Team.
 2001-2005 NASA Global Precipitation Measurement Mission (GPM) Deputy Project Scientist.
 2002-2008 National Science Foundation Advisory Committee on Environmental Research and Education.
 2004 NASA New Investigator Program Review Panel.
 2004 Program Committee for 2004 Satellite Meteorology Conference.
 2001-2003 Committee of Visitors for the Review of the NSF Biocomplexity in the Environment program.
 Past Member of HEAT Inter-agency Planning Committee.
 Past NASA Representative to User Requirements Sub-Group for the International Working Group Global Earth Observations.
 Past Member NASA/GSFC Water Cycle Advisory Team.
 2002-2004 AMS Committee on Satellite Meteorology (2002-2004).
 2002 NASA Laboratory for Atmospheres Peer Award Selection Committee (2002).
 1993-2005 Numerous NASA Committees: Code 900 DAAC Users Working Group, Technical Review

- Committee for Howard University Research Center, Source Evaluation Board (SEB) –Code 912.0 Support Contract Selection, GSFC Committee on Improving Communications with the Center Director, GSFC Committee to Standardize Promotion Criteria for Scientists, Goddard GSRP Fellowship Selection Committee.
- 1999-2001 Tropical Rainfall Measuring Mission (TRMM) Outreach Scientist (1999-2001).
- 1996-1998 Past chairman and member of the American Meteorological Society’s Board on Women and Minorities (member from 1994-1998).
- 1996-2001 Past chairman of Earth Science Directorate Multicultural Diversity Advisory Council.

Memberships: American Meteorological Society (AMS), American Geophysical Union (AGU), Association of American Geographers (AAG)-pending dues renewal, Southeastern Division of AAG (SEDAAG)-pending dues renewal, International Association for Urban Climate (IAUC), National Geographic Society, Sigma Xi.

OTHER SERVICE

- 2010 Invited Dr. Franco Einaudi (NASA) to campus for the Inaugural Climate and Society Lecture
- 2010 Invited Dr. Lesley Ann Dupigny-Giroux (Vermont) under a Franklin Visiting Scholars Grant
- 2010 Invited Dr. Sharon Nicholson for Department of Geography Colloquium
- 2010 Attended UGA Teaching Academy Faculty Symposium (April 2010).
- 2009 Moderated session on Climate and Rainfall Variability at 2009 Georgia Water Resources Conference.
- 2008 Invited by Dean of the Franklin College of Arts and Sciences to attend Faculty Breakfast with UGA Provost Mace (August 2008).
- 2007 Invited Presentation to Franklin College Climate Change Advisory Board (October 15, 2007).

Administrative and University Service:

- Member of UGA Climate and Society Initiative Steering Committee (Current).
- Member of Franklin College of Arts and Science Task Force on Diversity and Inclusion (Current).
- Member of Department of Geography Search Committee, GIS and Remote Sensing Faculty Position (Current)
- Served on Curriculum Committee, Admissions Committee, Academic Standards Committee.
- GEOG1112 Faculty Coordinator (Current)
- Departmental Website Committee chair (Current).
- Departmental Colloquium Committee (2008-2009).
- Departmental Advisory Committee (2007-2009).
- Departmental Graduate Studies Committee (2009).
- Departmental Representative to Faculty Senate (2006-2009).
- Departmental Faculty Meeting Scribe (2006).
- Worked with Dept. Head Brook, Prof. Mote, and Prof. Grundstein on the establishment of a new Departmental Climatology Laboratory (2006).
- Completed CITI Course in the Protection of Human Research Subjects (#414503).
- Faculty Marshall at Fall (2006) and Summer (2007) Commencement Activities.
- Chair, Physical Geography Faculty Search Committee (2007).
- Served as a reviewer for 2008 Excellence in Research by Graduate Student Award (December 2007).